399-2-18 (C6196)
Log Data Report

Borehole Information:

Borehole:	399-2-18 (C6196)		Site:	300-FF-5	
Coordinates (WA St Plane)		GWL[1] (ft):	27.0	GWL Date:	06/15/08
North (m)	East (m)	Drill Date	TOC[2] Elevation	Total Depth (ft)	Type
116066.0	594254.2	06/11/08	Unknown	65.0	Sonic

Casing Information:

Casing Type	Stickup (ft)	Outer Diameter (in.)	Inside Diameter (in.)	Thickness (in.)	Top (ft)	Bottom (ft)
Welded Steel	0.5	7 5/8	6 7/8	3/8	-0.5	60

Borehole Notes:

Well site geologist reported casing data and total depth. Logging engineer measured depth to water with an e-tape, and casing diameters using a steel tape and rounding to the nearest 1/16-in.

Logging Equipment Information:

Logging System:	Gamma 4 L		Type: / Serial No.:	60% HPGe SGLS / 47TP32211A
Effective Calibration Date:	12/31/07	Calibration Reference:	HGLP-CC-027	
		Logging Procedure:	HGLP-MAN-002, Rev. 0	

Logging System:	Gamma 4 H		Type: / Serial No.:	NMLS / H310700352
Effective Calibration Date:	11/06/07	Calibration Reference:	HGLP-CC-021	
		Logging Procedure:	HGLP-MAN-002, Rev. 0	

Spectral Gamma Logging System (SGLS) Log Run Information:

Log Run	1	2	3 Repeat		
Date	06/12/08	06/15/08	06/15/08		
Logging Engineer	Pearson	Pearson	Pearson		
Start Depth (ft)	0.0	64.0	22.0		
Finish Depth (ft)	18.0	17.0	28.0		
Count Time (sec)	200	200	200		
Live/Real	R	R	R		
Shield (Y/N)	N	N	N		
MSA Interval (ft)	0.5	0.5	0.5		
Log Speed (ft/min)	N/A	N/A	N/A		
Pre-Verification	DL431CAB	DL441CAB	DL441CAB		
Start File	DL431000	DL441000	DL441095		
Finish File	DL431036	DL441094	DL441107		
Post-Verification	DL431CAA	DL441CAA	DL441CAA		
Depth Return Error (in.)	0	0	¼ low		
Comments	No fine gain adjustment made.	No fine gain adjustments made.	Repeat section.		

Neutron Moisture Logging System (NMLS) Log Run Information:

Log Run	4	5 Repeat			
Date	06/15/08	6/15/08			
Logging Engineer	Pearson	Pearson			
Start Depth (ft)	0.0	23.0			
Finish Depth (ft)	27.0	26.0			
Count Time (sec)	15	15			
Live/Real	R	R			
Shield (Y/N)	N	N			
MSA Interval (ft)	0.25	0.25			
Log Speed (ft/min)	N/A	N/A			
Pre-Verification	DHF12CAB	DHF12CAB			
Start File	DHF12000	DHF12109			
Finish File	DHF12108	DHF12121			
Post-Verification	DHF12CAA	DHF12CAA			
Depth Return Error (in.)	N/A	0			
Comments	None.	Repeat section.			

Logging Operation Notes:

Data were collected using Gamma 4, HO 68B-3573. SGLS pre- and post-survey verification measurements were acquired in the Amersham KUTh-115 field verifier. Maximum SGLS logging depth was 64.4 ft before the sonde un-weighted. A centralizer was installed on the sonde. NMLS pre- and post-survey verification measurements were acquired in the standard field verifier. Maximum NMLS logging depth achieved was 27.0 ft.

Analysis Notes:

Analyst:	LEGLER	Date:	6/25/08	Reference:	GJO-HGLP 1.6.3, Rev. 0

The pre- and post-survey verification spectra met the acceptance criteria for the established systems, but verification files DHF12CAB and DHF12CAA had measurements above the upper control limit for counts per second. A correction for a 3/8-in. thick casing was applied to SGLS data from ground surface to 60 ft, leaving 4.4 ft of open borehole uncorrected. A water correction was also applied from 27 ft to total logged depth of borehole.

SGLS spectra were processed in batch mode in APTEC SUPERVISOR to identify individual energy peaks and determine count rates. Concentrations were calculated with an EXCEL worksheet template identified as G4LDec07.xls using efficiency functions, and corrections for casing, dead time, and water as determined by annual calibrations.

Moisture data are presented in counts per second because no calibration data exists for a 6 7/8-in. inner diameter casing.

Results and Interpretations:

Cs-137, U-235, and U-238 (Pa-234m) were detected at several isolated depths throughout this borehole. Inspection of the individual spectra for these radionuclides at the various depths indicates these detections are statistical fluctuations associated with the processing software and are not considered valid.

The KUT plots indicate good repeatability. The moisture plot indicates some variability.

List of Log Plots:

Depth Reference is ground surface

Manmade Radionuclides
Natural Gamma Logs
Combination Plot
Total Gamma & Dead Time
Total Gamma & Moisture
Repeat Section of Natural Gamma Logs
Moisture Repeat Section

[1] GWL – groundwater level
[2] TOC – top of casing

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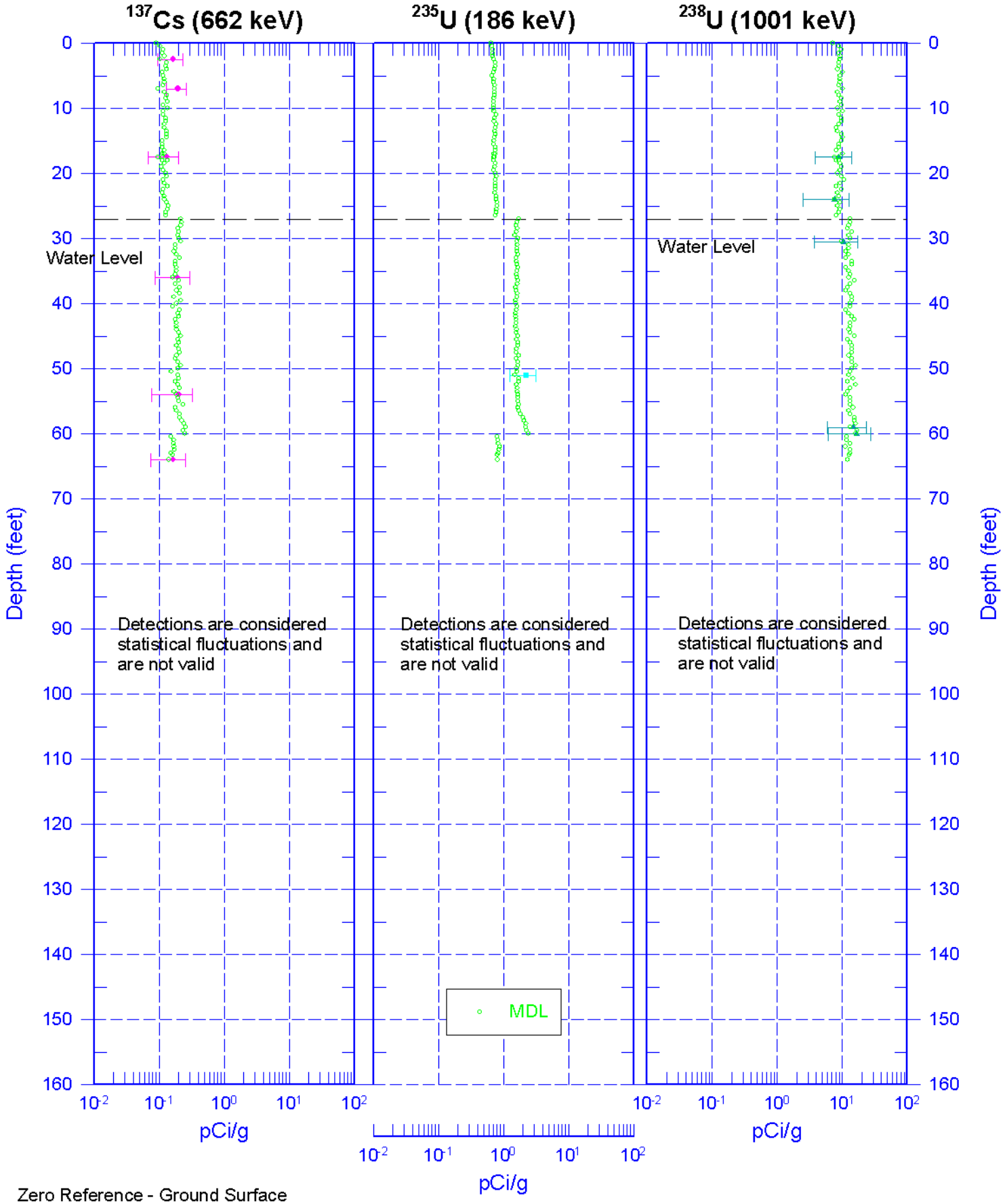
399-2-18 (C6196)
Manmade Radionuclides



Zero Reference - Ground Surface

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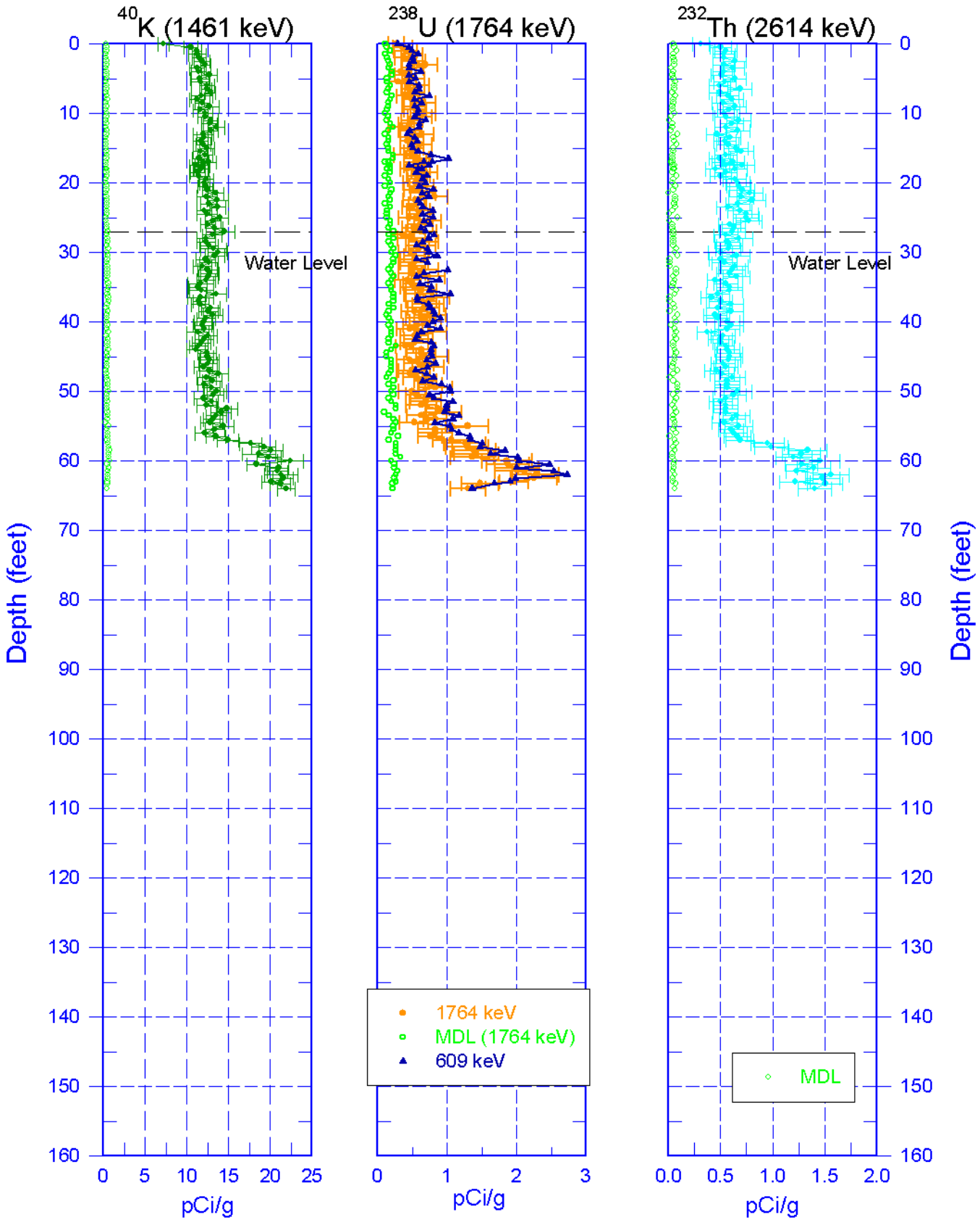
399-2-18 (C6196)
Natural Gamma Logs



Zero Reference - Ground Surface

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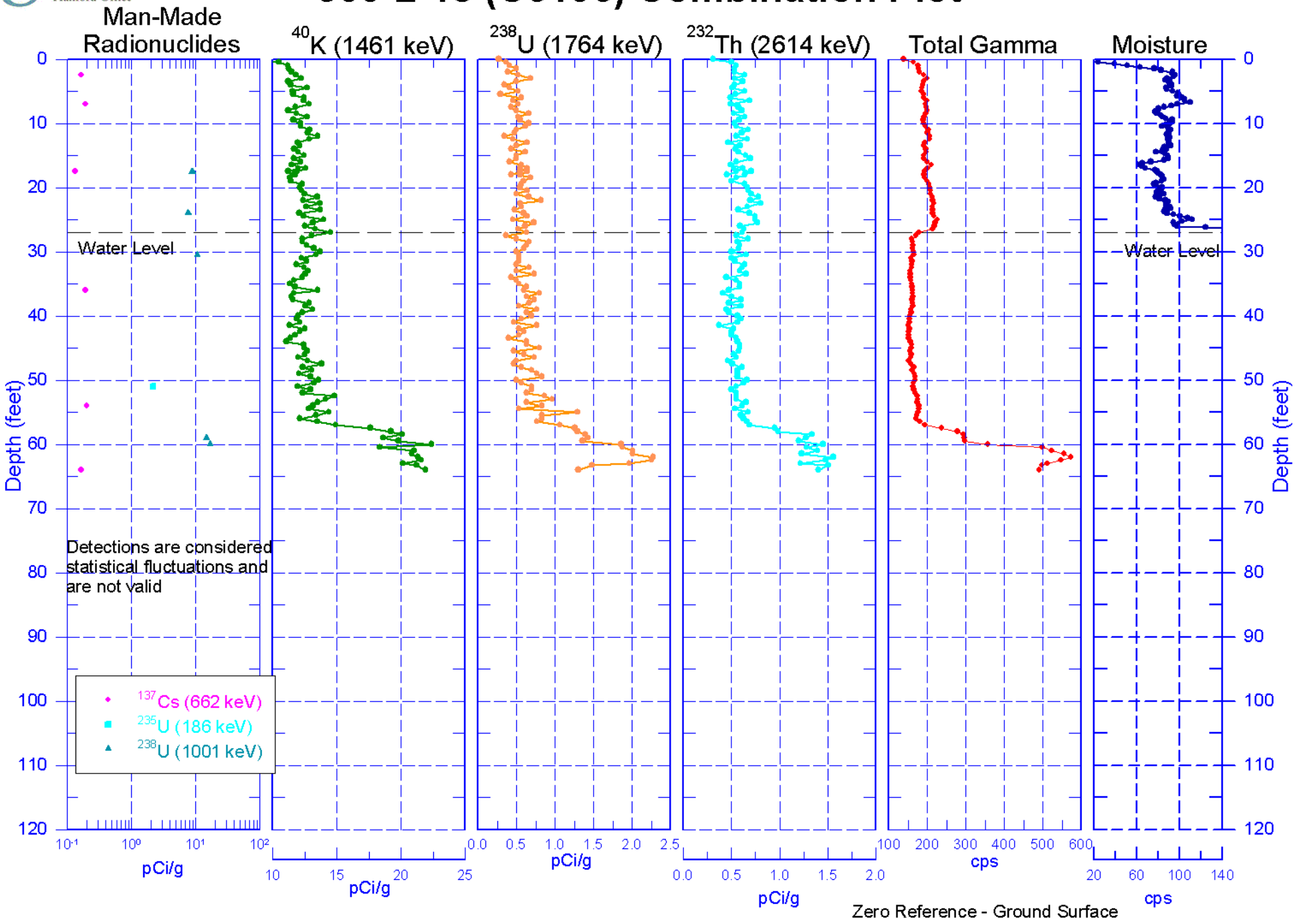
399-2-18 (C6196) Combination Plot



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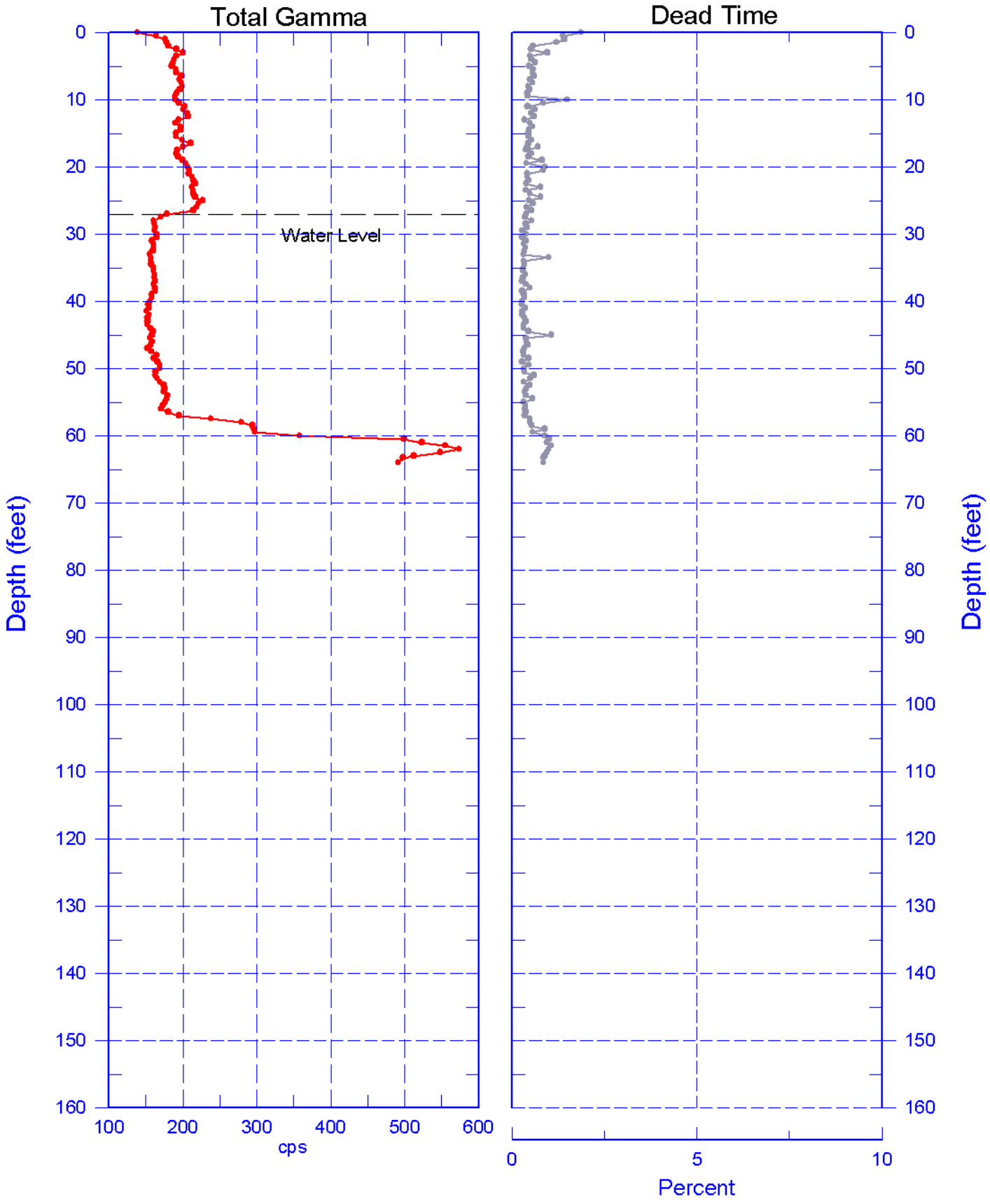
399-2-18 (C6196)
Total Gamma & Dead Time



Reference - Ground Surface

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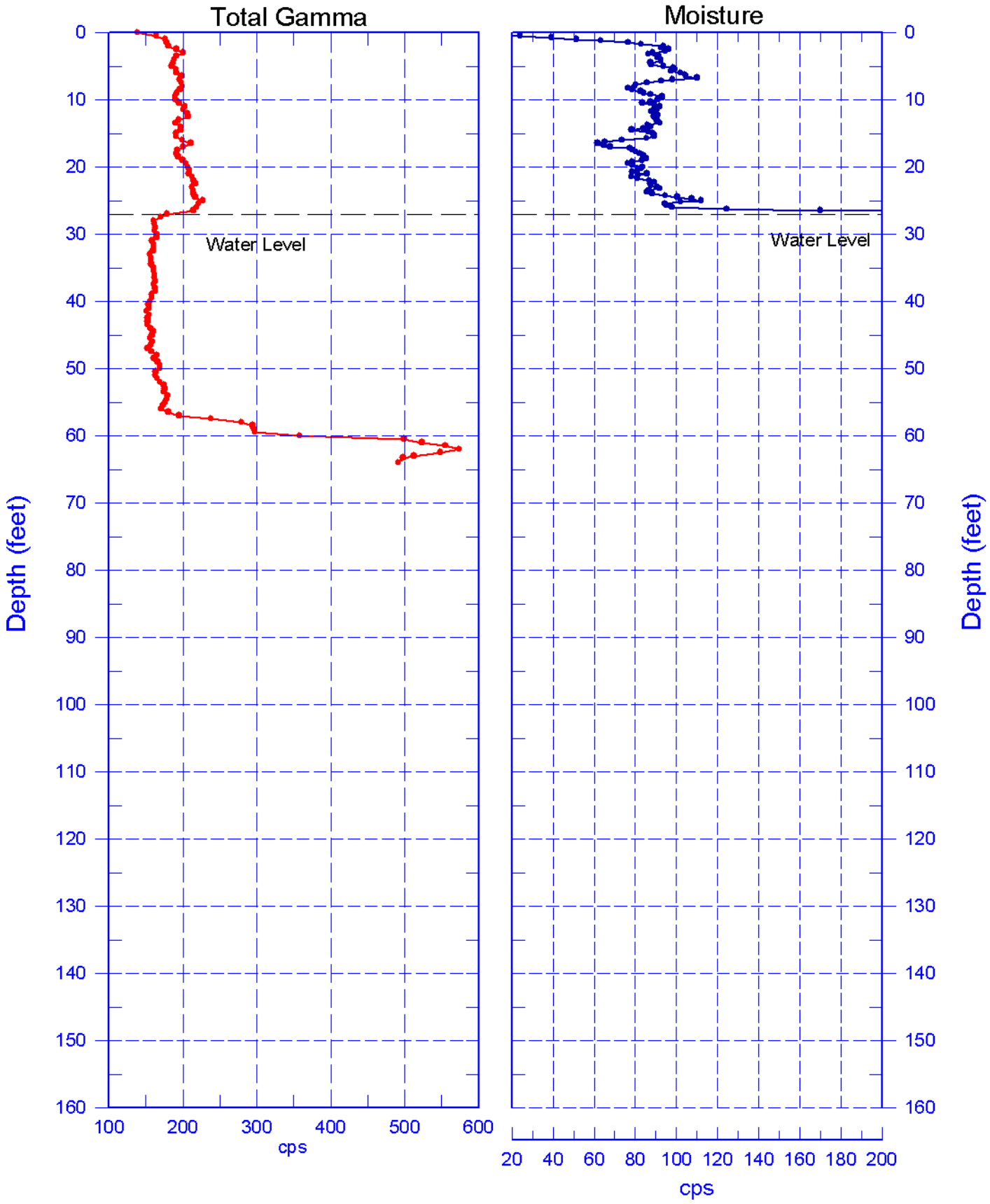
399-2-18 (C6196)
Total Gamma & Moisture



Reference - Ground Surface

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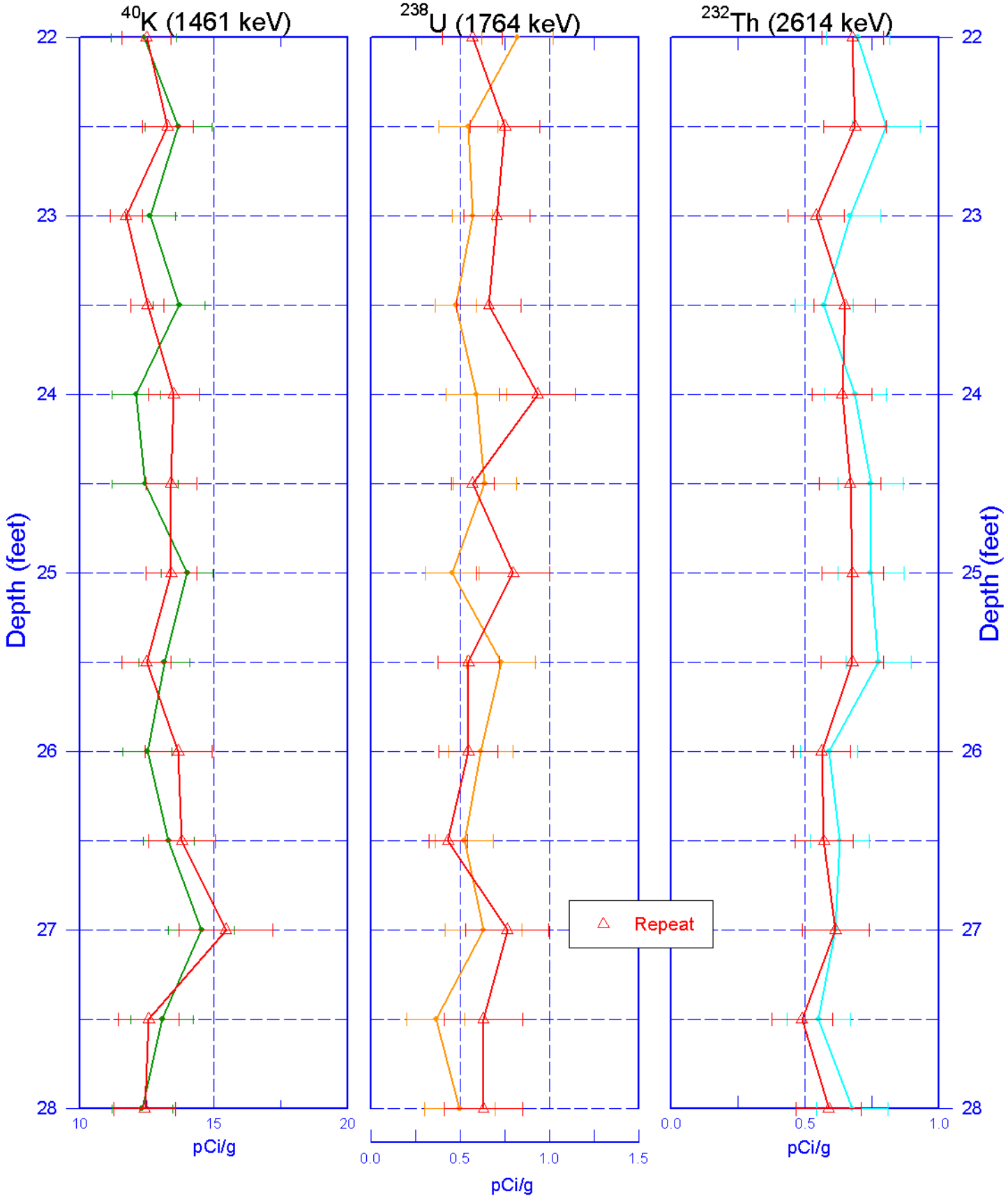
399-2-18 (C6196)

Repeat Section of Natural Gamma Logs



Zero Reference - Ground Surface

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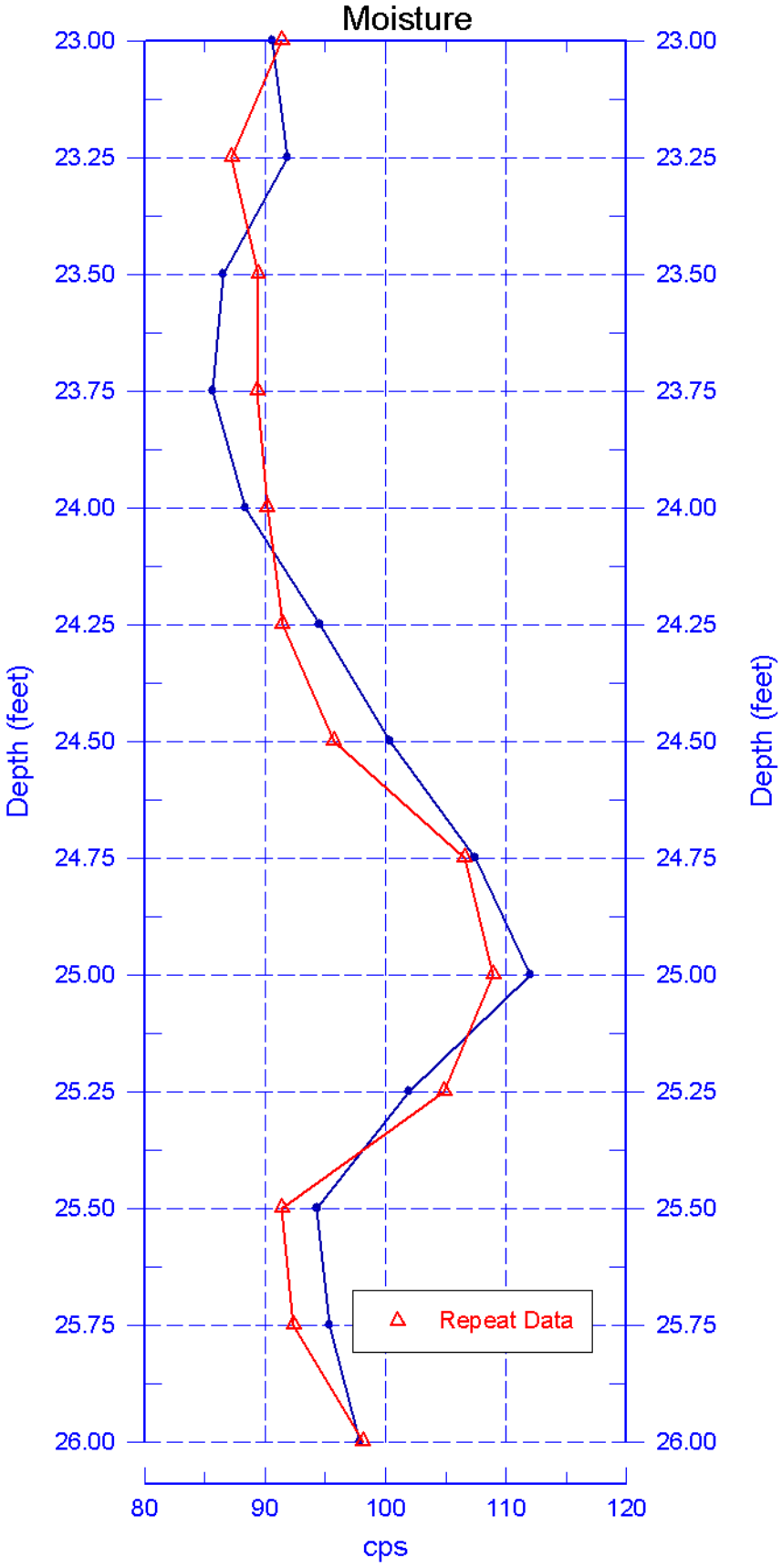
399-2-18 (C6196)
Moisture Repeat Section



Reference - Ground Surface